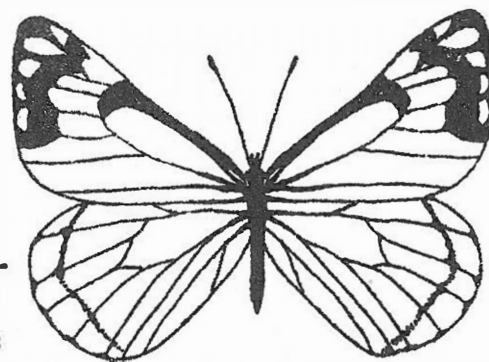


MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

DIVISION OF FORESTRY

INSECT AND DISEASE REPORT



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FOREST INSECT CONDITIONS

IN MONTANA - 1975

By

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Insects, as well as diseases, are significantly diminishing the forests of Montana. The most recent estimates indicate that approximately 164 million cubic feet of timber are killed annually from various causes on commercial forest lands in Montana.¹ The largest percentage of this mortality is caused by insects and diseases.

Insects and diseases also cause serious reduction in growth of trees attacked but not killed. In addition to growth loss, insect attacks may result in top kill or deformities which reduce the quality of timber resources. Seed and cone insects also destroy the seed crops necessary for reforestation of logged or burned areas.

THE CONTROL PROGRAM

There is great opportunity for increasing timber production and for preserving forests for recreational and aesthetic uses by reducing damage and losses caused by these agents. Under the Insect and Disease Control Program, responsibilities of the Division of Forestry of the Department of Natural Resources and Conservation, fall into four basic areas:

1. Encouraging the use of preventive measures of demonstrated effectiveness on State and private forest lands as the first line of defense against destructive insects and diseases.
2. Operating a detection program with surveys of sufficient intensity and frequency to ensure prompt discovery of forest insect and disease outbreaks on State and private lands.

3. Providing for thorough biological, cost-benefit, and environmental impact evaluations of insect and disease outbreaks on State and private forest lands as a basis for deciding for or against suppression.
4. Practicing and encouraging the use of effective means of forest insect and disease control which provide the least potential hazard to man, domestic animals, wildlife, and other components of the natural environment.

PROGRAM ACCOMPLISHMENTS

The following are among the evaluations and studies made during 1975.

1. The annual cooperative aerial insect and disease detection survey was conducted. Blocks of forest land flown contained the bulk of State and private commercial ownerships, including the Swan River, Stillwater, and Coal Creek State Forests. A total of 2,438,720 acres of forest land were aerially surveyed by the Division of Forestry, and insect and disease infestations were mapped.
2. A total of 34 field detection reports and damage samples were received from Division field personnel and private landowners for identification and recommendations.
3. A study to determine the effectiveness of cacodylic acid herbicide as an agent causing mountain pine beetle brood mortality in treated trees was conducted in the Little Snowy Mountains south of Lewistown. Beetles were attracted by baiting the study trees with pheromone attractant. Both pre and post-flight applications of the herbicide were made, and the effects on beetle brood mortality were assessed and compared.
4. To determine the distribution of Douglasfir tussock moth in Montana, a survey was conducted using sticky traps baited with sex attractant to trap male moths. Baited traps were placed at 125 locations throughout the Douglasfir and true fir host type in the western half of the State during the adult moth flight period. Male Douglasfir tussock moths were trapped at 64 of the 125 locations.
5. A survey and evaluation of street and park trees were conducted for the city of Bozeman. Insect and disease problems were identified and recommendations made for control and preventive tree maintenance.

REVIEW OF CONDITIONS

Bark Beetles

MOUNTAIN PINE BEETLE, *Dendroctonus ponderosae* (Hopk.)

Infestation levels continued their upward trend in overstocked second-growth ponderosa pine stands and mature lodgepole pine stands in the State.

In the Gallatin River drainage, south of Bozeman, mortality in lodgepole pine continued to increase. The infestation now covers more than 5,000 acres of Federal and private lands. Volumes in excess of 1.5 million board feet have been killed annually for the last two years. Scattered groups of infested lodgepole also occurred north of West Yellowstone and in the Hebgen Lake area. The Gallatin Canyon outbreak is expected to continue at high levels in 1976.

Killing of lodgepole pine continued on about 800 acres of Burlington Northern and Federal lands in the Jack Creek drainage east of Ennis. Additional heavy losses are expected in 1976.

Infestations also continued in 8,500 acres of second-growth ponderosa pine in the Ninemile Creek drainage west of Missoula. Thinning of overstocked stands within the infested areas by the State and the U.S. Forest Service has reduced losses.

Additional losses were incurred chiefly in lodgepole pine in the Four Mile Flats area near St. Regis. New attacks were found in Sloway Gulch, in the lower Mill Creek drainage, and along the Clark Fork near St. Regis.

Several hundred additional lodgepole pine were killed in the increasing outbreak on 5,000 acres of U.S. Plywood, Burlington Northern, State and Federal lands in the Meadow and Lazier Creek drainages north of Thompson Falls. New attacks were detected along the Thompson River between Lazier Creek and Fishtrap Creek, where approximately 230 trees were killed. Several additional groups of from 5 to 20 infested trees were also detected in the Fishtrap Creek and Twin Lake Creek drainages.

Several hundred ponderosa pines were again killed on private lands near Johnson and Butler Creeks and in Sawmill Gulch northwest of Missoula.

Losses increased in second-growth ponderosa pine on State and private land in the Blackfoot River drainage between Milltown and Ovando. Approximately 500 trees were killed on private lands east of Greenough. Several new groups of from 5 to 20 infested trees were detected near the river south of Clearwater Junction. An additional 350 trees were killed on State and private lands north of Potomac. A group of 50 trees was killed near Diamond Mountain, and new attacks were detected near Rainbow Bend.

Mountain pine beetle activity increased along the Clark Fork drainage east of Missoula from Clinton to Bearmouth. Several groups of ponderosa pine totalling 200 trees were killed in the Cramer Creek drainage and Beavertail Hill area. A group of 50 trees was killed near Bearmouth. Scattered new attacks were found in the Cramer Creek drainage and near Bonita and Clinton.

Activity in ponderosa pine stands on mixed ownerships south of Helena increased. Infested trees occurred in the Prickley Pear, Dutchman and McClellan Creek drainages.

Continued tree killing by mountain pine beetle occurred on State, private, and Federal lands in the Little Snowy Mountains south of Lewistown, and infestations continued in the Wolf Mountains near Crow Agency for the third year despite salvage operations which removed approximately four million board feet of dead or infested ponderosa pine from private and Bureau of Indian Affairs lands in the Indian and Thompson Creek drainages.

DOUGLASFIR BEETLE, Dendroctonus pseudotsugae (Hopk.)

Activity by Douglasfir beetle continued at low levels in Montana. Infestations consisted of small, scattered groups of overmature Douglasfir. About 20 trees were killed in summer home areas on Flathead Lake near Rocky Point, causing concern to the homeowners.

PINE ENGRAVER BEETLE, Ips sp.

Damage by pine engraver beetles generally remained at low levels on State and private lands in Montana, due in part, to the extremely cold and late spring and wet summer weather of 1975. Some ponderosa pine were killed by pine engraver east of Pablo near

thinning areas and in subdivisions. Ips beetles also continued to be present in the mountain pine beetle infestation in the Ninemile drainage, killing additional small ponderosa pine in overstocked stands.

Damage by pine engraver to ponderosa pine in residential areas of Grant Creek and Rattlesnake Creek near Missoula has been greatly reduced or eliminated by a concerted effort to make developers and property owners aware of preventive measures. Removal of breeding material and care in road construction, landscaping and other subdivision activities have prevented additional losses.

SPRUCE BEETLE, Dendroctonus rufipennis (Kirby)

Infestations of spruce beetle remained at low levels in 1975. Brood found in spruce overturned by extensive flood damage in the Stillwater State Forest in 1974 remained in these down trees. Populations did not build up and attack standing trees.

Defoliators

WESTERN SPRUCE BUDWORM, Choristoneura occidentalis (Freeman)

A total of approximately 2,955,500 acres of Douglasfir, true fir, and spruce forests showed aerially visible defoliation by budworm in 1975. In general, infestations east of the Continental Divide continued to increase, while defoliation areas west of the Divide remained rather static. Extremely heavy defoliation causing some mortality and top kill occurred in Douglasfir stands on private, Federal and State lands near Ennis. Heavy defoliation also occurred in stands in the Helena area and near Townsend. Significant increases in defoliation in the Gallatin Canyon caused concern for a number of summer homeowners.

LARCH CASEBEARER, Coleophora laricella (Hbn.)

Although most of the western larch type in Montana is infested with casebearer, no significant defoliation occurred in most areas, especially at the higher altitudes. Moderate to heavy defoliation occurred again on some lower elevation stands bordering Flathead Lake. Light to moderate defoliation occurred along the west shore of Swan Lake, in surrounding areas, and in the north end of the Swan River State Forest.

DOUGLASFIR TUSSOCK MOTH, Orgyia pseudotsugata (McD.)

Douglasfir tussock moth outbreaks in Montana, which in 1974 covered approximately 11,000 acres in the Rocky Point area north of Polson, near Frenchtown, and smaller spots near Lolo, Ravalli and St. Ignatius, declined largely due to the effect of natural virus levels in the populations. In 1975, only two areas received visible defoliation from tussock moth feeding; 20 acres of State land south of St. Ignatius and 40 acres of mixed ownership west of Ravalli.

Egg mass surveys conducted in 1975 in the previous infestation area showed that only a small area south of St. Ignatius would have high larvae populations in 1976. Plans are being developed to test the effectiveness of ground application of several insecticides on tussock moth larvae in this area.

A survey was conducted in 1975 to determine the distribution of Douglasfir tussock moth in Montana. Sticky traps baited with sex attractant pheromone were used to attract and trap adult male moths during the flight period. These traps were placed at 125 locations

throughout the Douglasfir and true fir host type in the western half of Montana. Traps were more concentrated in areas with a history of tussock moth activity. Approximately 30 of the locations were east of the Continental Divide.

At least one male Douglasfir tussock moth was caught at each of 64 locations. None were caught east of the Continental Divide. Results of the trapping show the distribution of Douglasfir tussock moth in Montana to be the Flathead Valley, Swan Valley, Clark Fork drainage west and east of Missoula, Blackfoot River drainage east of Missoula to Greenough, and Bitterroot Valley.

WESTERN FALSE HEMLOCK LOOPER, Nepytia freemani (Munroe)

No visible defoliation was caused by this insect in 1975 in the northern portion of the Flathead Valley, where it had caused light to moderate defoliation on 3,000 acres of Douglasfir in 1974. The infestation has been declining since 1973.

Western false hemlock looper was found severely defoliating the tops of 30-foot blue spruce in a windbreak planting near the town of Pine Creek in Park County.

FOREST TENT CATERPILLAR, Malacosoma disstria (Hbn.)

About 2,000 acres of cottonwoods, aspen, and other deciduous trees and shrubs were again defoliated by forest tent caterpillar between Evaro and Arlee. Heaviest defoliation was in cottonwoods along Finley Creek just south of Arlee. Random egg mass samples indicate additional defoliation will occur in 1976. Severe tree damage has not resulted since the trees have been able to refoliate following feeding.

Other Insects

DOUGLASFIR NEEDLE MIDGE, Contarinia sp.

Infestations of this needlemining midge increased in many areas of the Flathead Valley. Private landowners on Flathead Lake and its islands expressed concern because of the unsightness of trees with needles discolored by mining larvae. Some areas, managed for Christmas tree production, were also affected.

CONE AND SEED INSECTS

Several cone and seed insects caused damage in Montana during the year. Western spruce budworm continued to be the most serious pest of the Douglasfir cone crops. In several areas east of the divide, the amount of seed produced for natural regeneration was greatly reduced because of budworm damage to developing cones.